

## Shared Magnetics Hall Thruster, Phase I

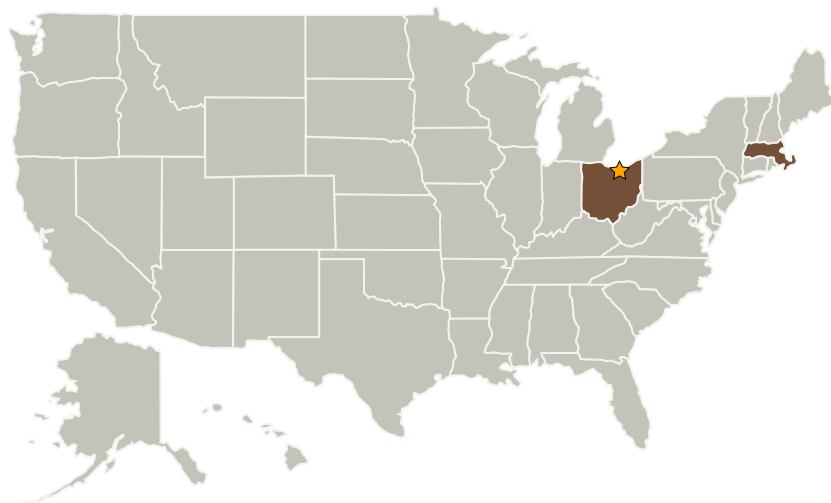
Completed Technology Project (2005 - 2005)



## Project Introduction

In the proposed Phase I program, Busek Co. will demonstrate an innovative methodology for clustering Hall thrusters into a high performance, very high power propulsion system. The concept uses multiple thruster discharge assemblies with a common (shared) magnetic structure. The concept combines the benefits of clustering that include modularity, reliability, reduced beam divergence and throttleability with the cost, mass savings and power loss reduction of a shared magnetic structure. In Phase I, Busek will conduct a sub-scale demonstration of a shared magnetics cluster based on our existing BHT-600 (nominally 600 W input power) Hall thruster. A methodology for shared magnetics clustering will be developed that can be applied to the full range of Hall thruster power requirements (100 kW ? 1 MW) envisioned by NASA for orbit insertion, planetary transfers and manned exploration. In Phase II a 200 ? 400 kW shared magnetics thruster based on NASA's existing high power Hall thruster technology will be designed and built. Busek is uniquely positioned to implement the proposed program having expertise in both the clustering of Hall thrusters and shared magnetics thruster development.

## Primary U.S. Work Locations and Key Partners



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## Organizational Responsibility

**Responsible Mission Directorate:**

Space Technology Mission Directorate (STMD)

**Lead Center / Facility:**

Glenn Research Center (GRC)

**Responsible Program:**

Small Business Innovation Research/Small Business Tech Transfer

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Organizations Performing Work	Role	Type	Location
★ Glenn Research Center(GRC)	Lead Organization	NASA Center	Cleveland, Ohio
Busek Company, Inc.	Supporting Organization	Industry Women-Owned Small Business (WOSB)	Natick, Massachusetts

## Primary U.S. Work Locations

Massachusetts	Ohio
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## Project Management

**Program Director:**

Jason L Kessler

**Program Manager:**

Carlos Torrez

**Principal Investigator:**

Rachel Tedrake

## Technology Areas

**Primary:**

- TX01 Propulsion Systems
  - └ TX01.2 Electric Space Propulsion
    - └ TX01.2.2 Electrostatic